

New Grønmo Park

This project aims to transform the Grønmo area with large existing rubbish collection zones into a recreational park. At the same time, the current rubbish functions, material recycling, material composting and material sorting will be kept and be converted sustainable within the idea of the public park. The whole Grønmo area is around 42.5 hector. This transformation will reaffirm the qualities of river, forest, field site with the concept to infill new experiences into the area. There could be new activities in this area, including recycling learning classroom, birds watching, hiking, campfire festival, bicycle group gathering, picnic, Christmas tree market etc. This transformation project includes new organisation system of material collection, 2nd hand market, new organisation system of material sorting, new organisation of material composting, visitor centre, new system of contaminated water filtering. To be able to connect the area to the existing morphology and natural environment of South eastern of Oslo, this project is part of the effort to turn the contaminated areas around Oslo into a new landscape scenery. The task of the thesis is on the crossing section of landscape design, architecture infrastructure design and architecture design.

Grønmo is located in the south eastern part of Oslo in the district of Søndre Nordstrand approximately 12km southeast of the Oslo Centre. The size of the project site is around 42.5 hector, approximately to 1.5 times size of the Frogner Park. This area is close to Sorlieveien on the west and Grønmo golf course on the north. On the south, east and partly north, this area is surrounded

by Ostmarka as an important gateway to the forest. It is close to the E6 highway. Many hiking trails start from here. It serves as good meeting places outside in the area between the noisy city life and the quiet forest.

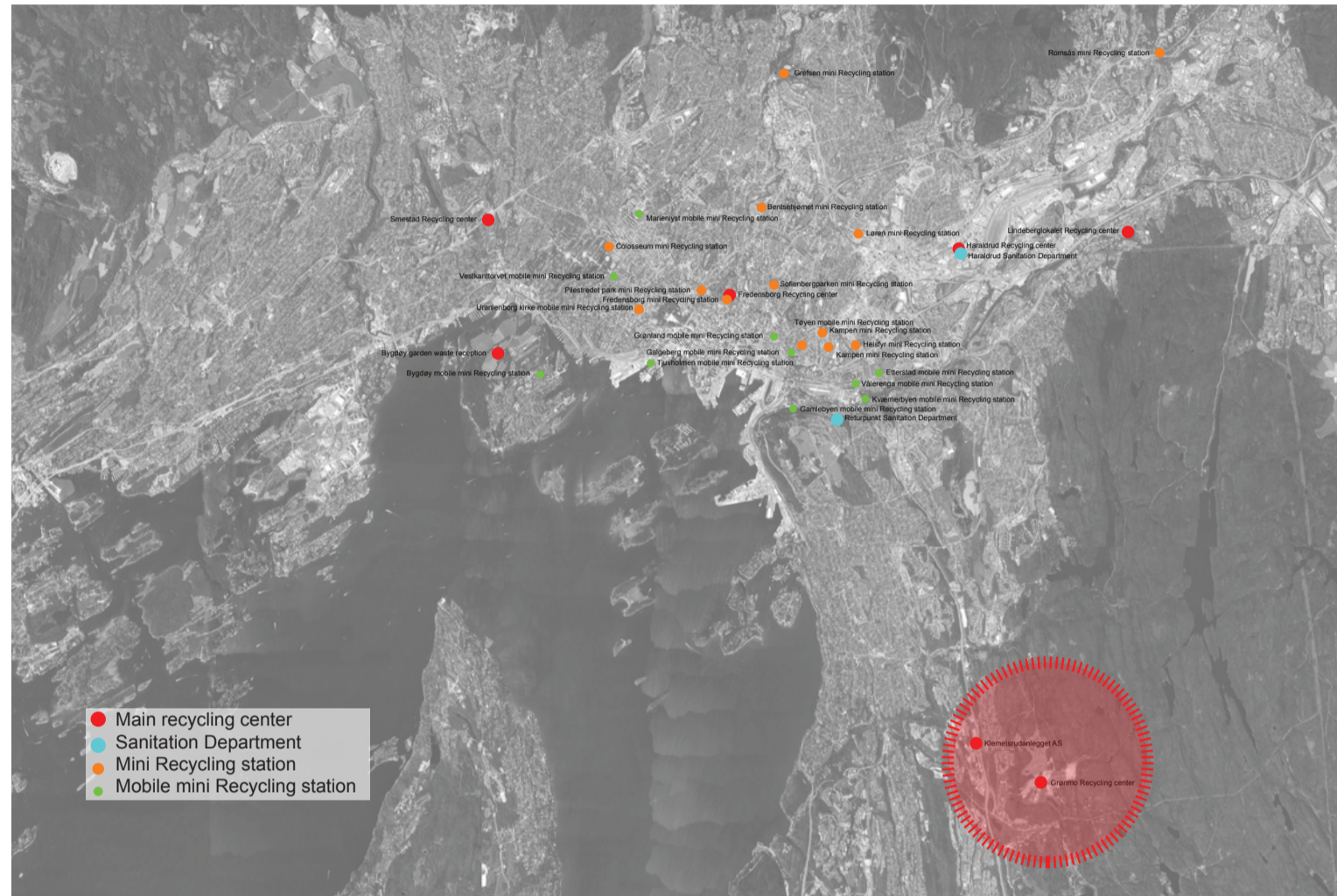
Grønmo was entirely covered by forest in the past. But now it is a large rubbish collection and treatment area. The Grønmo landfill used to be the largest one in Northern Europe. Having functioned as Oslo's main spot for the unwanted since 1969, Grønmo counted over 8 million cubic meters of trash. It was closed in 2009. Today the waste is covered by a thin piece of soil top cover with green dressed.

Right now, after the closure of the landfill place, there are a recycling station, a sorting area and a composting plant on site.

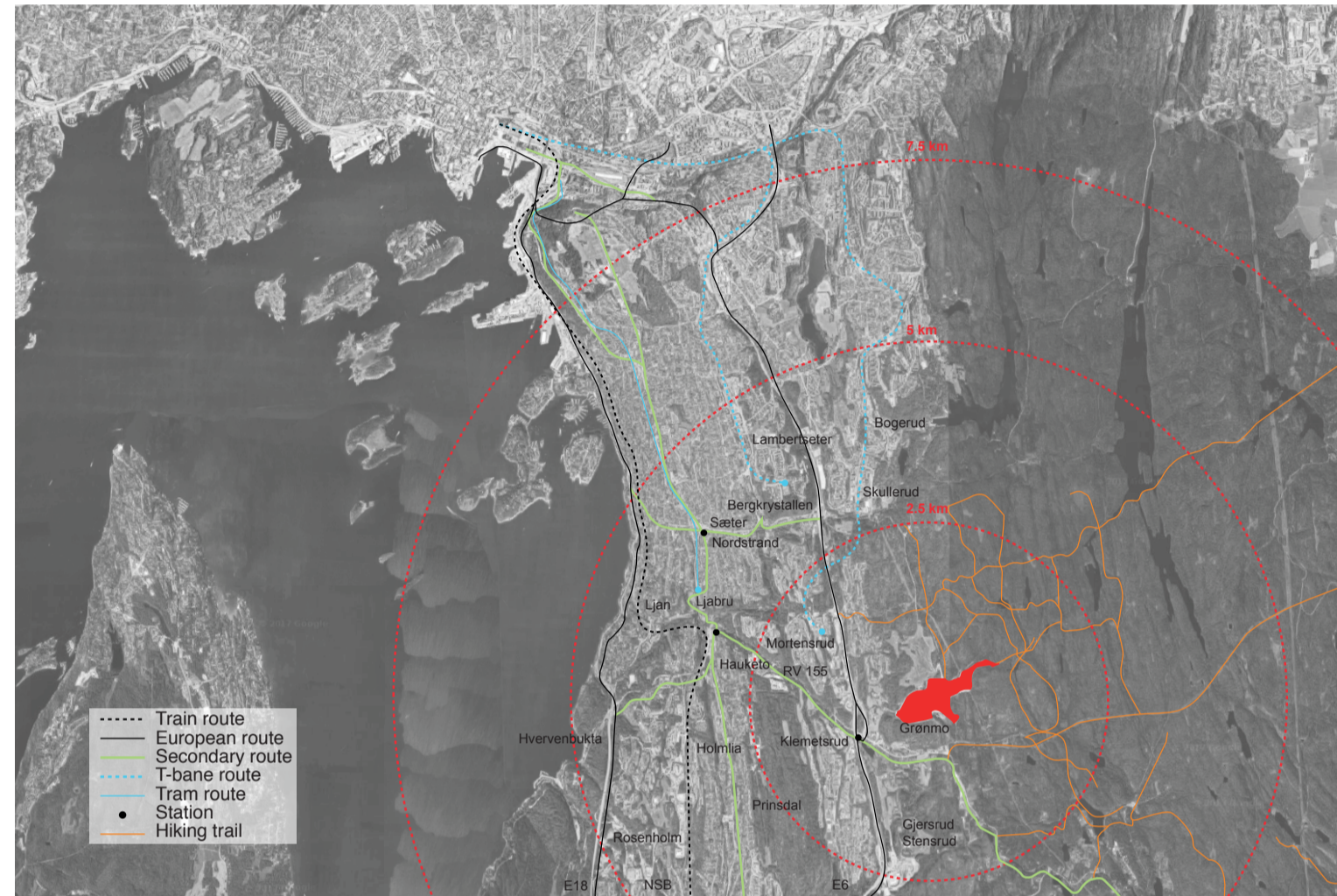
On the level of architecture and on the level of landscape, Grønmo will be constructed as a new meeting area between the natural environment and the man-made artificial landscape. Grønmo will be given new identity through good coexistence between recreation, learning and municipal engineering facilities and recycle material treatment.



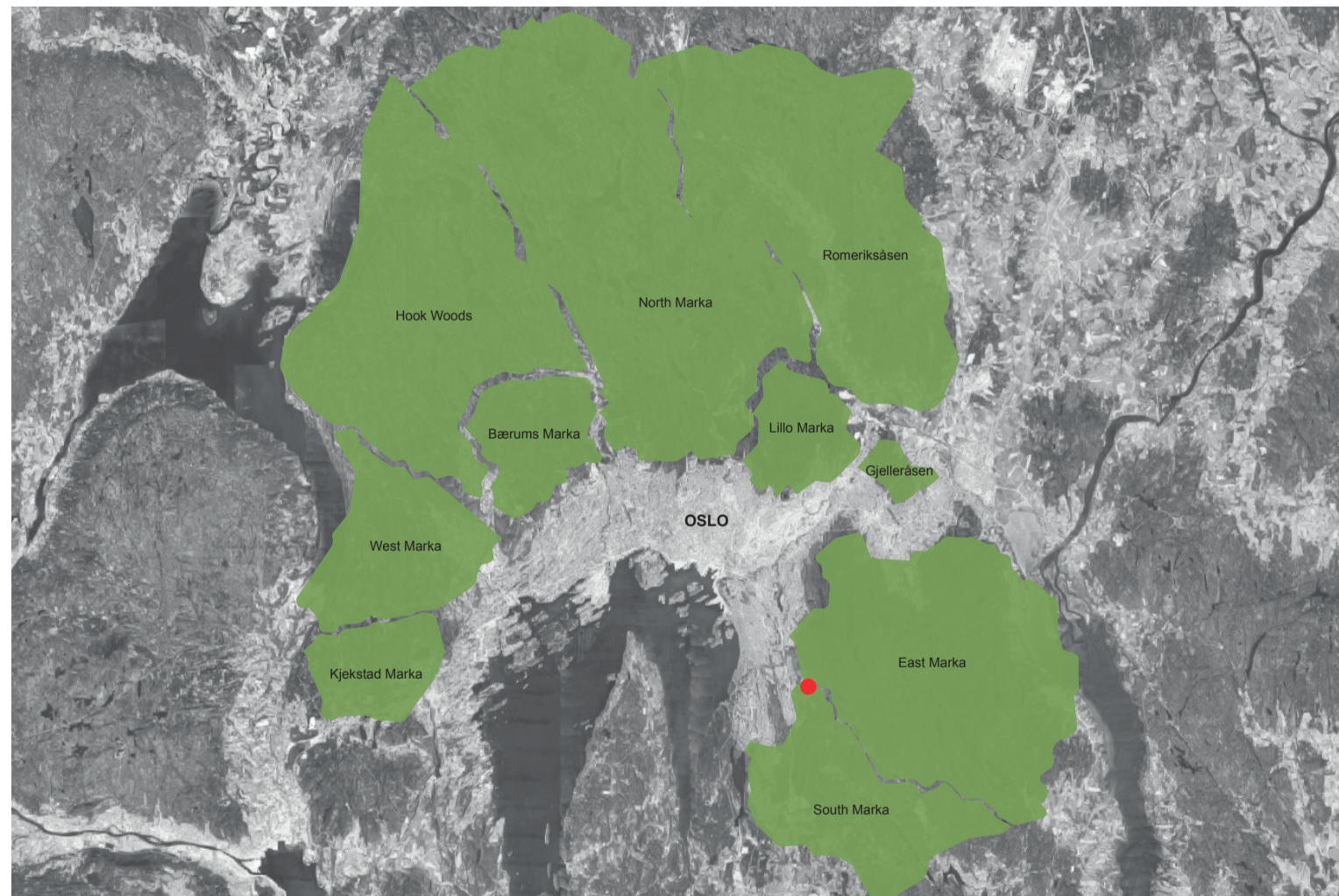
Original site situation



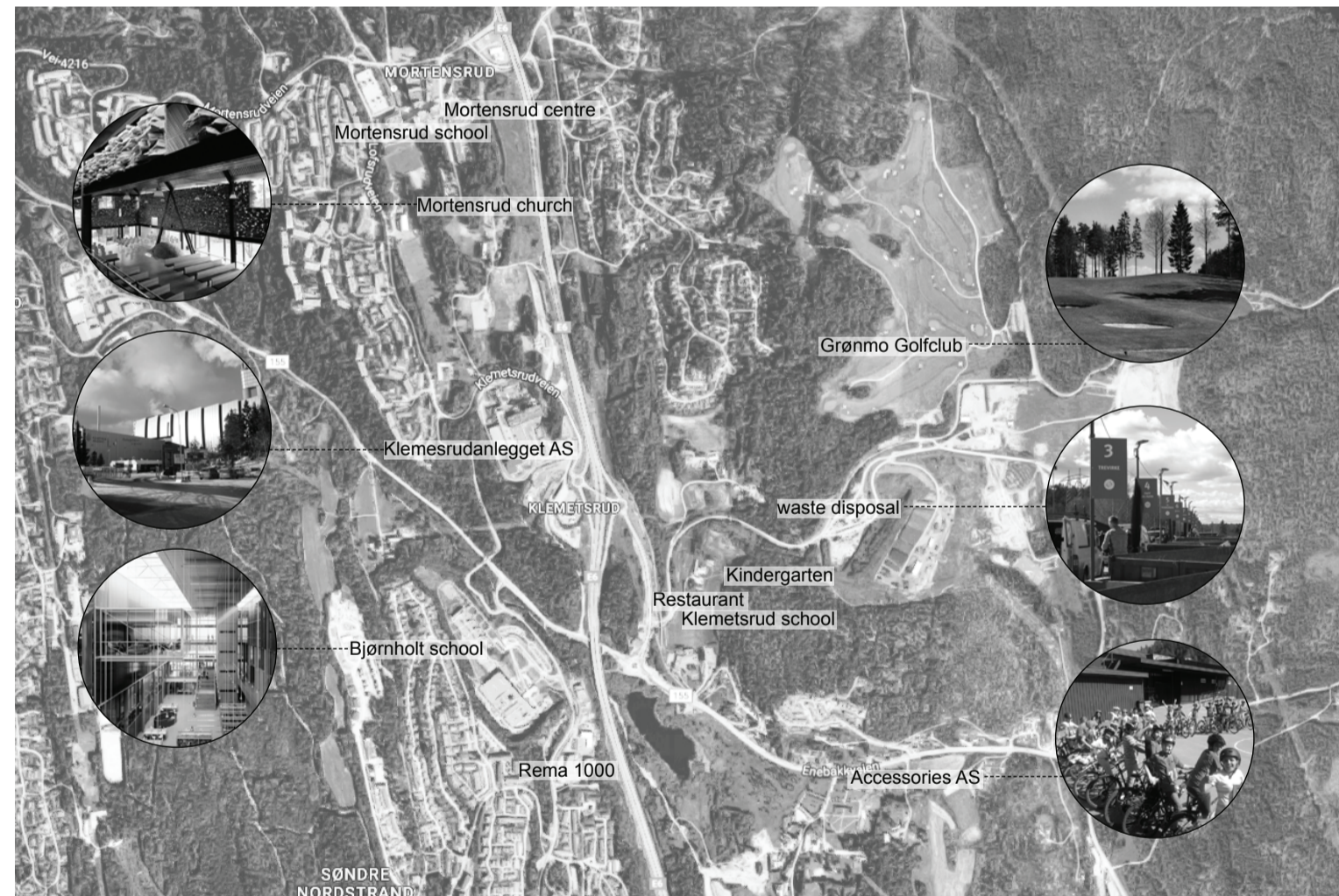
Waste material collection centers layout in Oslo



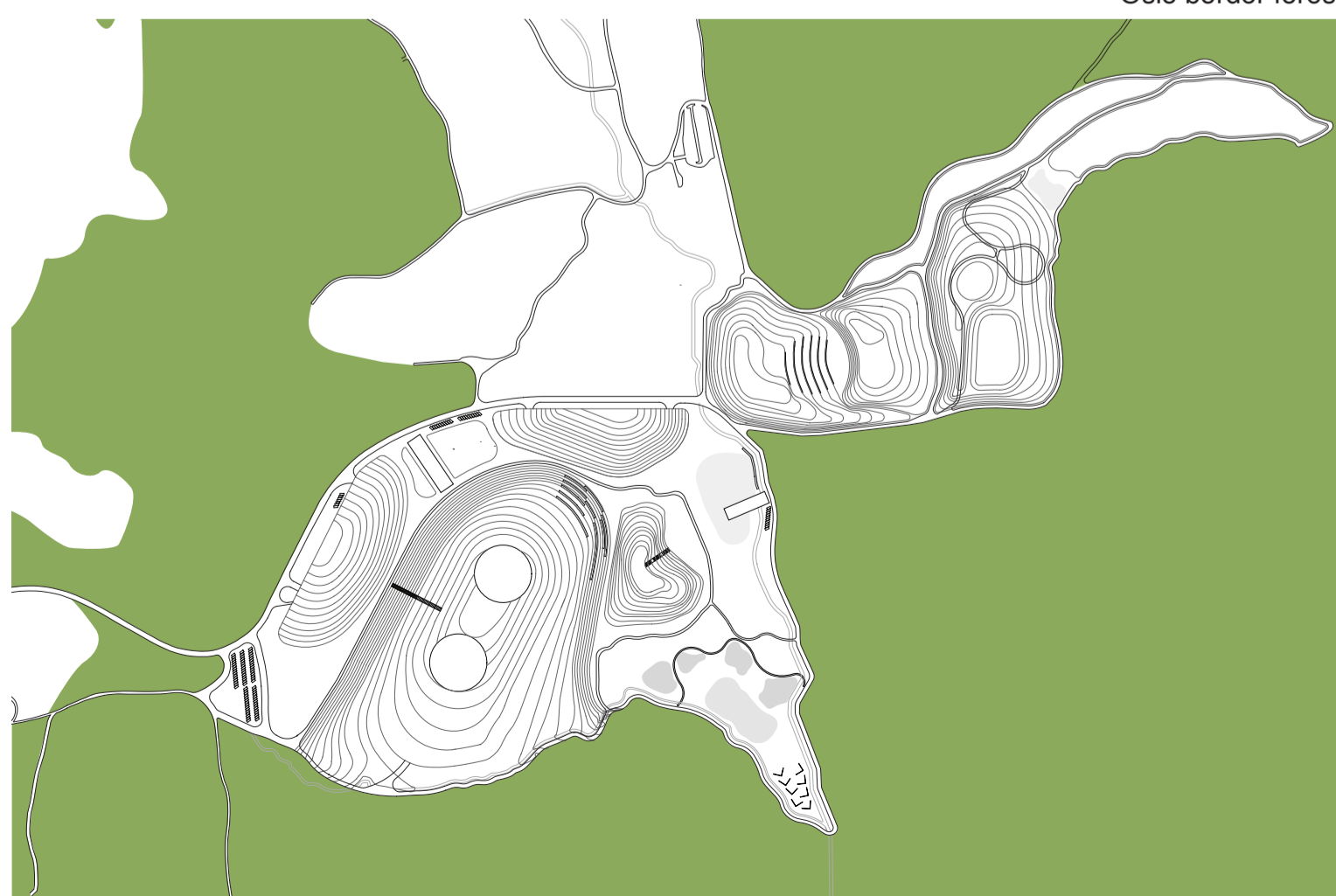
Grønmo location



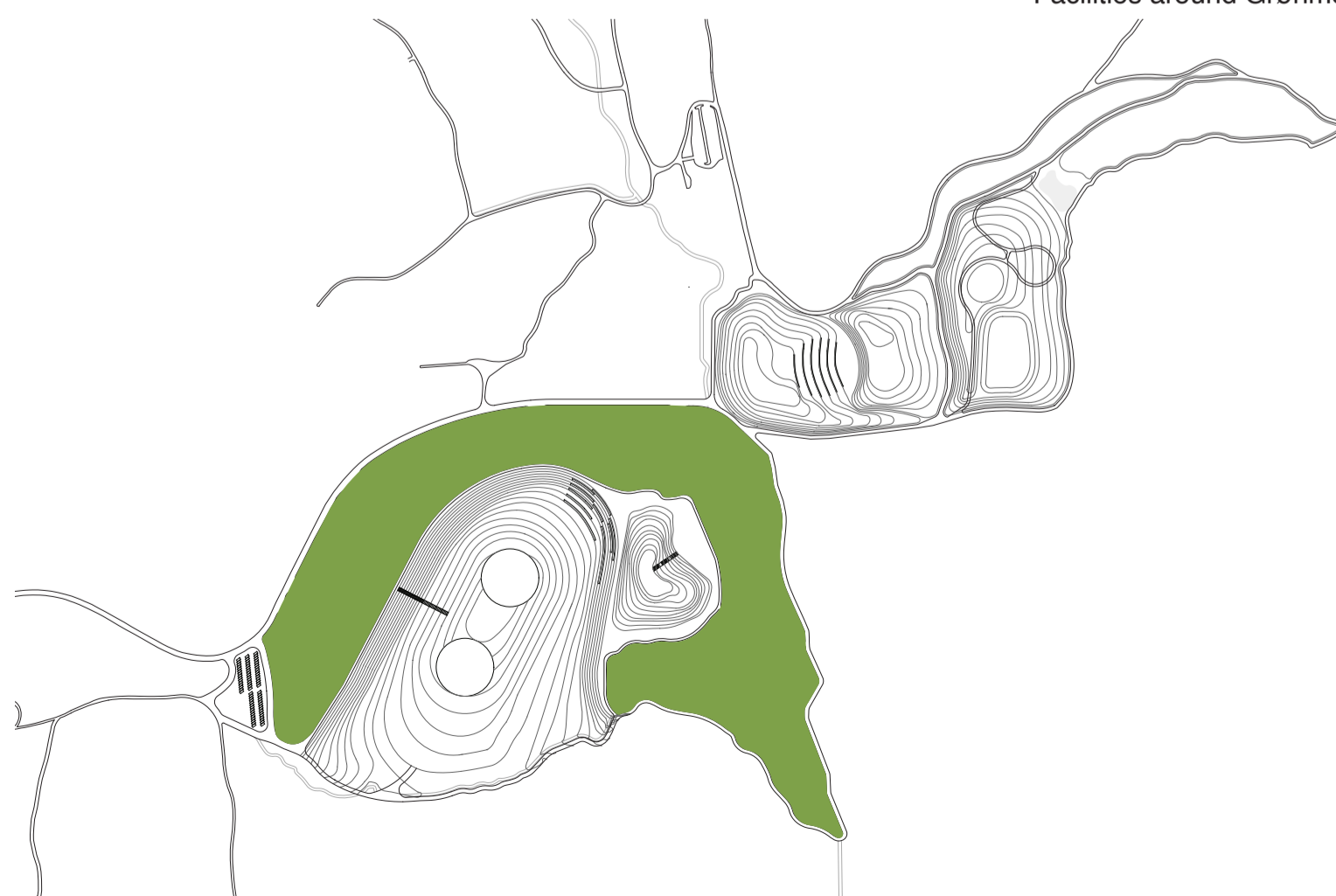
Oslo border forest



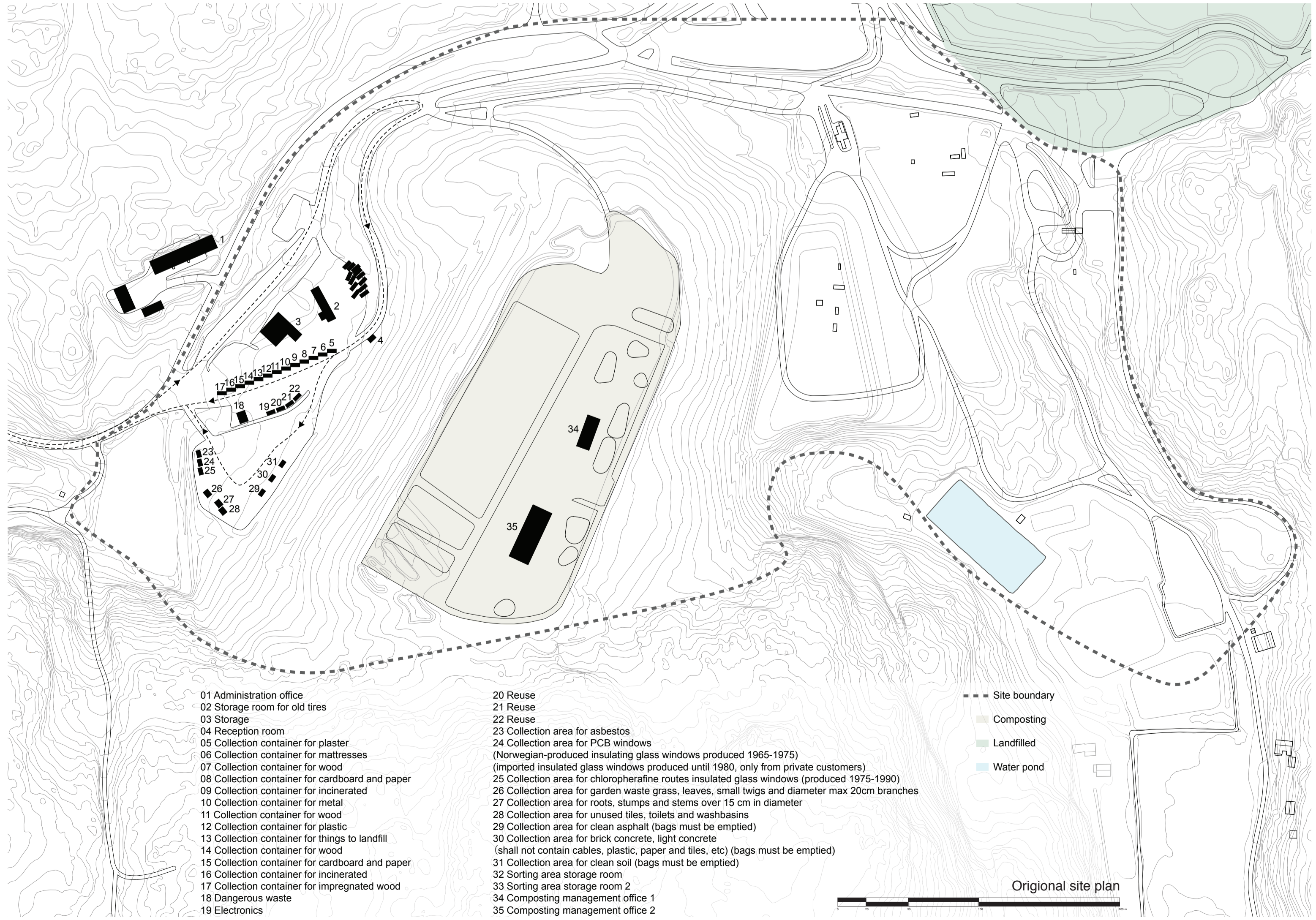
Facilities around Grønmo



Grønmo border forest



Artificial nature inside of the site



Original site plan

"New Grønmo Park" Program

1. Visitor center, 810 m2

Restaurant and Cafe
Small auditorium
Small exhibition space
Office

2. 2nd hand flea market, 1336 m2

Outside space: temporary market space

Inside space: market shops
offices
meeting rooms
storage
equipment rooms

3. Material recycling area, 9100 m2

Outside space: roof

Inside space: material collection containers area
administration office
storage
equipment rooms

4. Composting area, 21385 m2

Operational equipment space
Curing and compost storage
Raw material storage
Composting pad

5. Material sorting and treatment area, 9700 m2

Outside space: roof
Inside space: Material sorting and treatment area
Operational office

6. Landscape areas

Public area: parking area
scenery platform
gathering space
skating plate
landfilled park

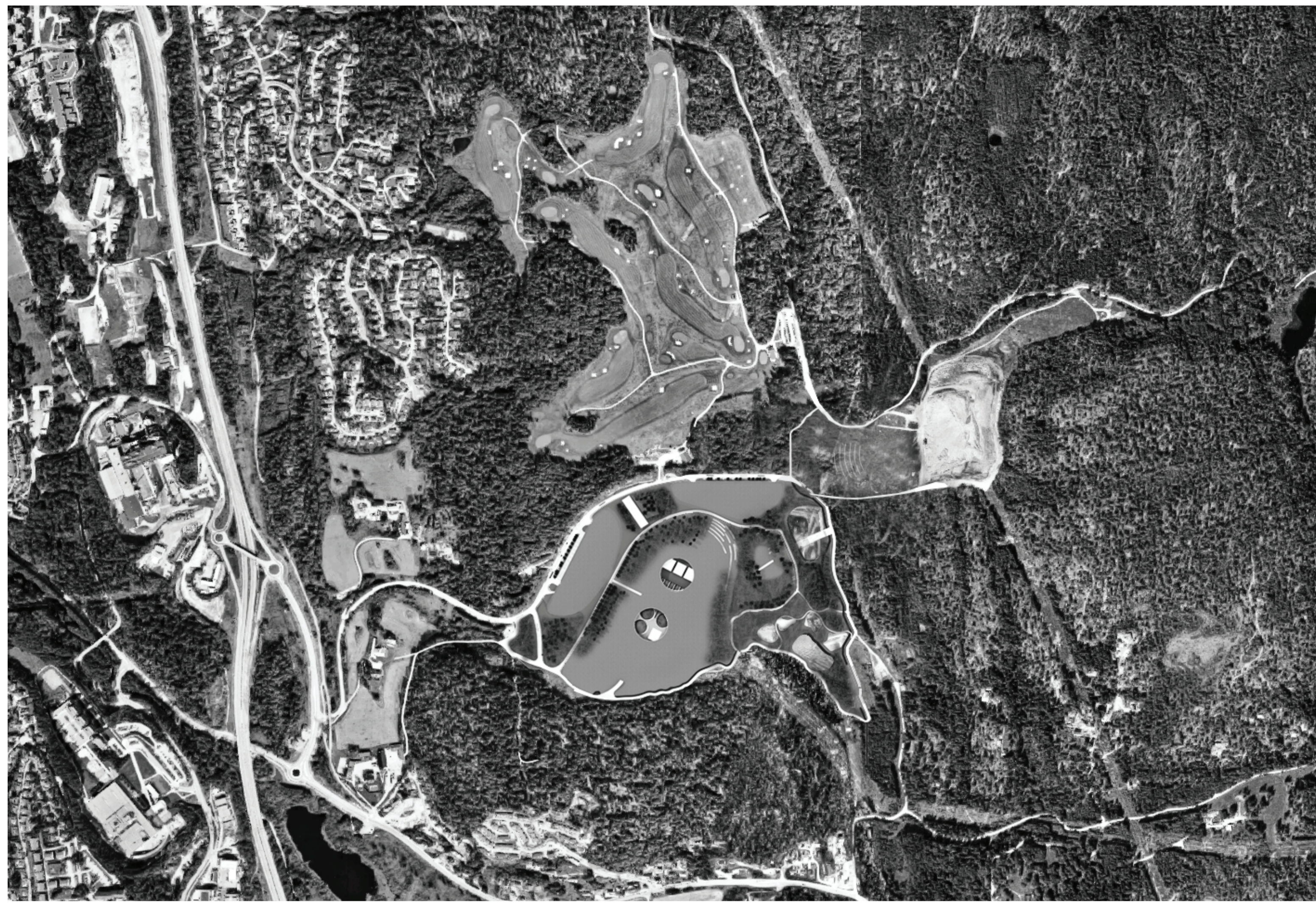
Infrastructural landscape: warm water pond
oxidation pond
enhancement pond
leachate water pond
clean water pond
wetland area

List of new activities in Grønmo

- Kids' learning path
- 2nd hand flea market
- Compost soil market
- Waste material recycling
- Birds watching
- Scenery viewing
- Cafe & restaurant
- Composting visit
- Hiking
- Bicycle group meeting
- Campfire festival

- Winter activities: Christmas tree market
Skiing
Skating

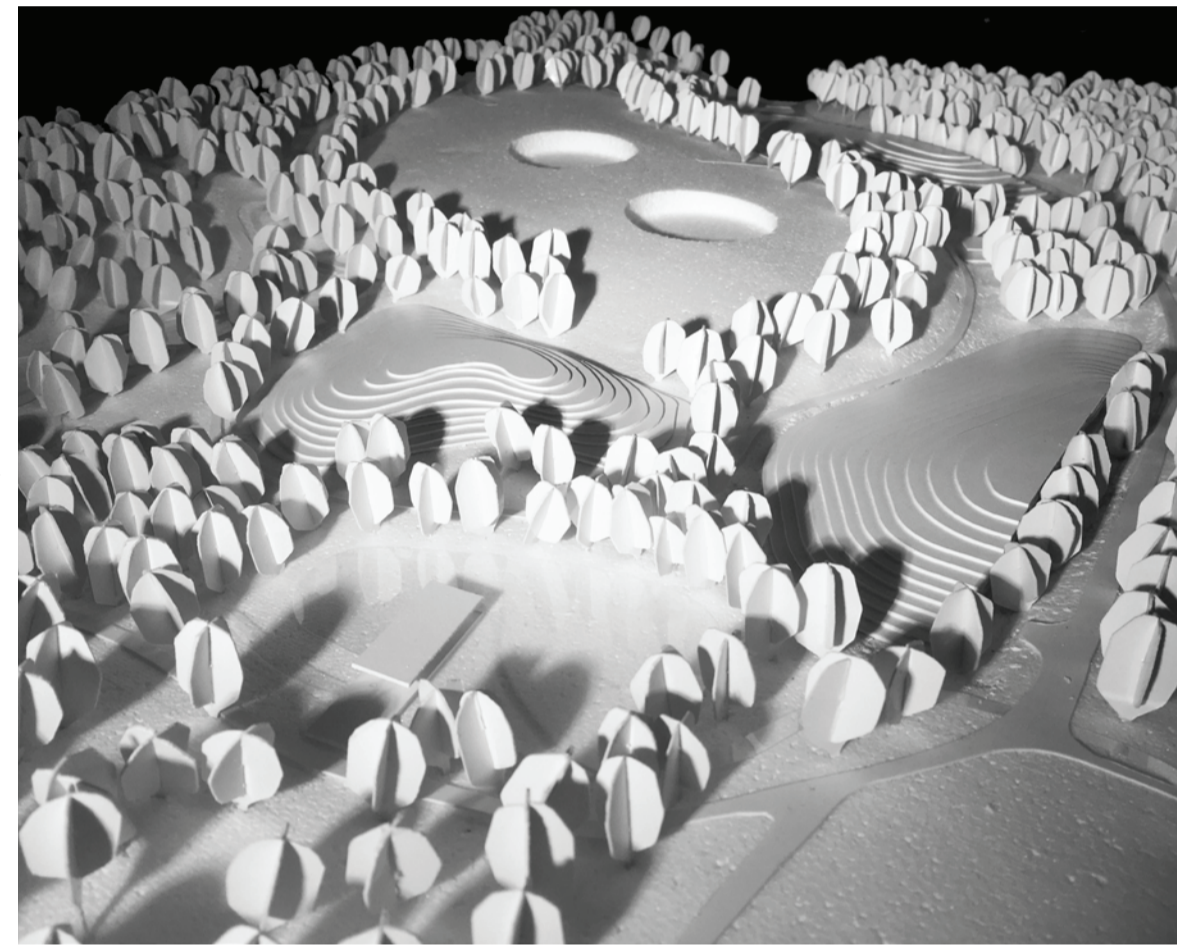
- Summer activities: Picnic
Swimming
Fruit pick up
Kite festival



Grønmo in 1969-2009



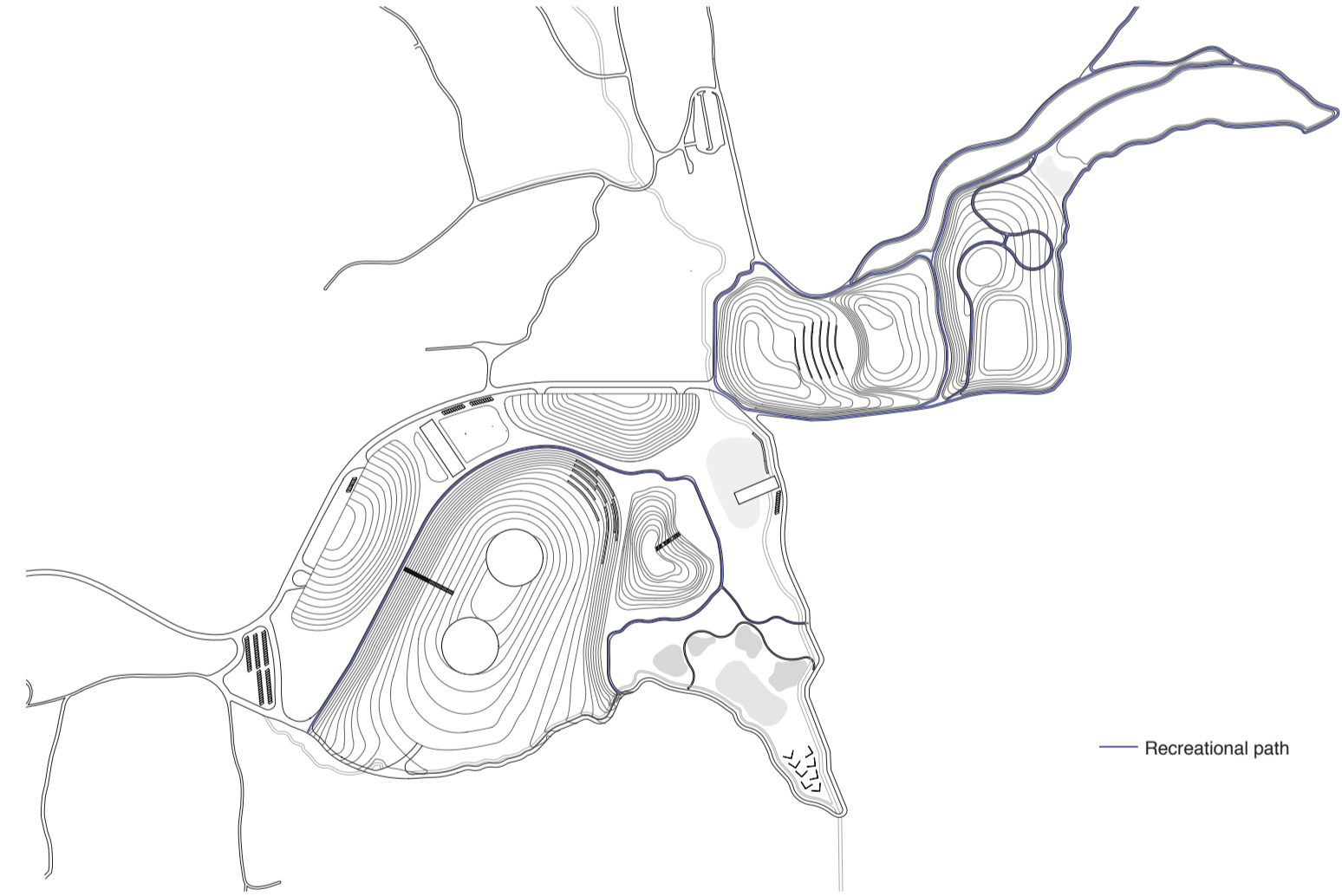
Grønmo in 2009-2017



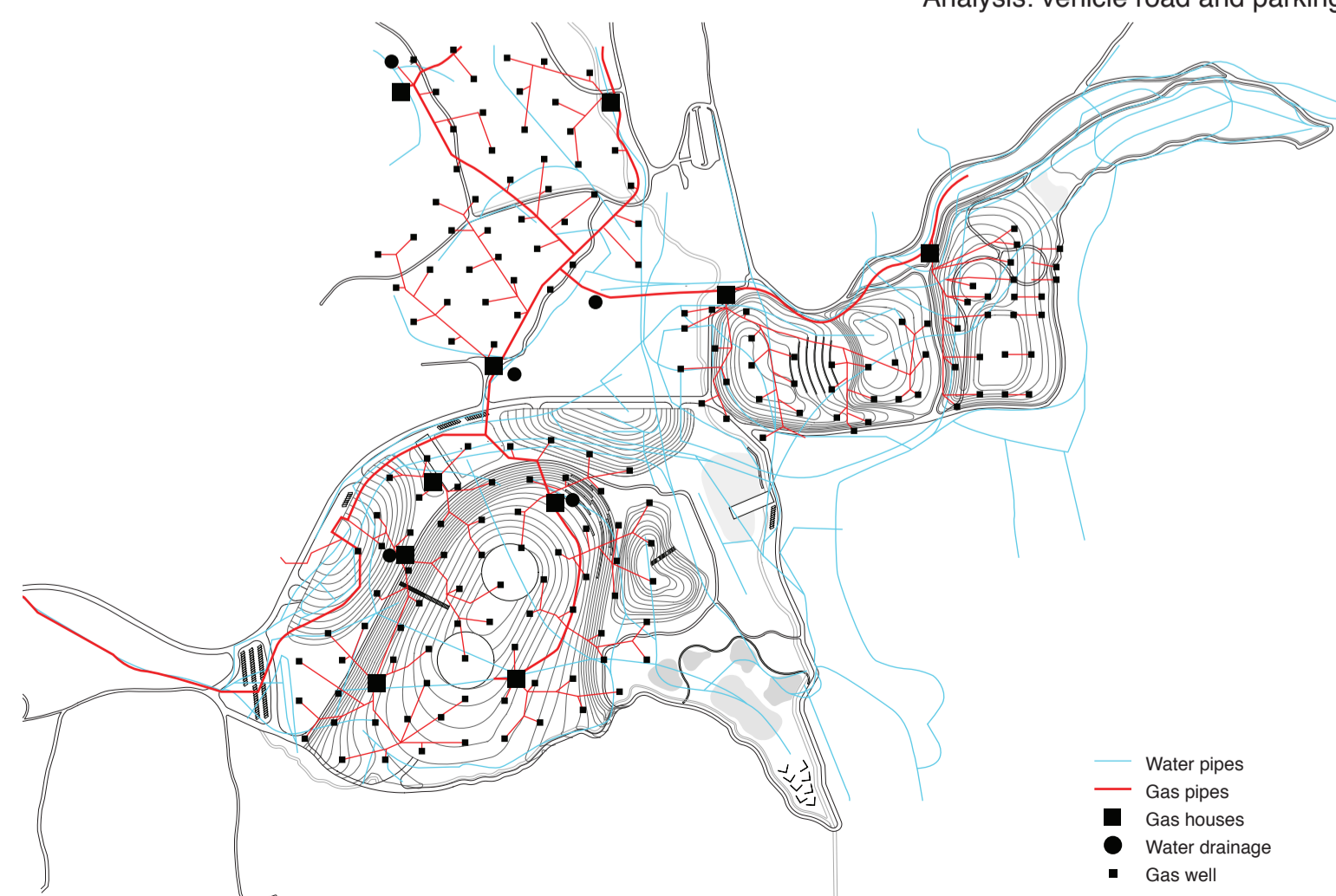
Grønmo in the future



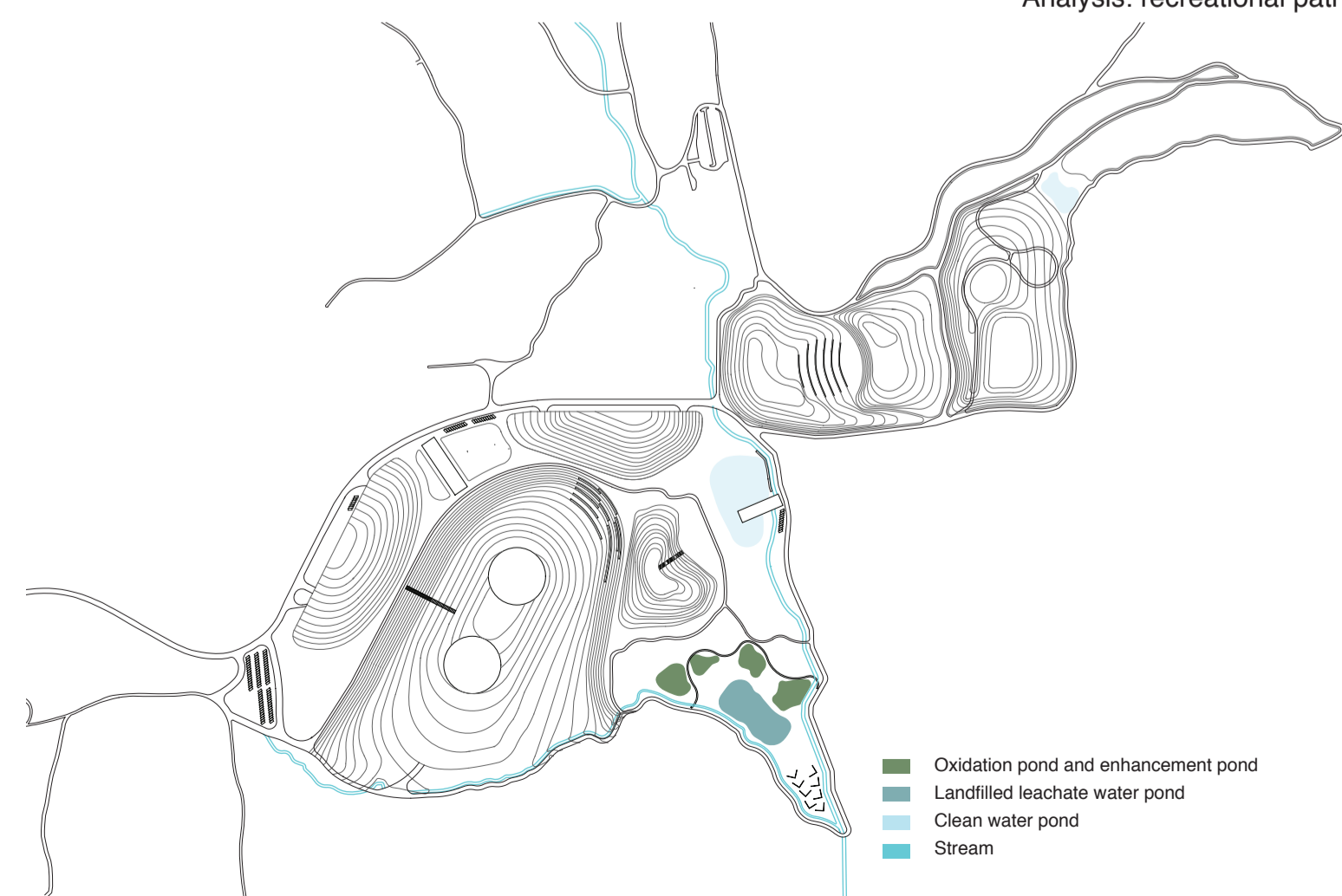
Analysis: vehicle road and parking



Analysis: recreational path



Analysis: underground facilities layout



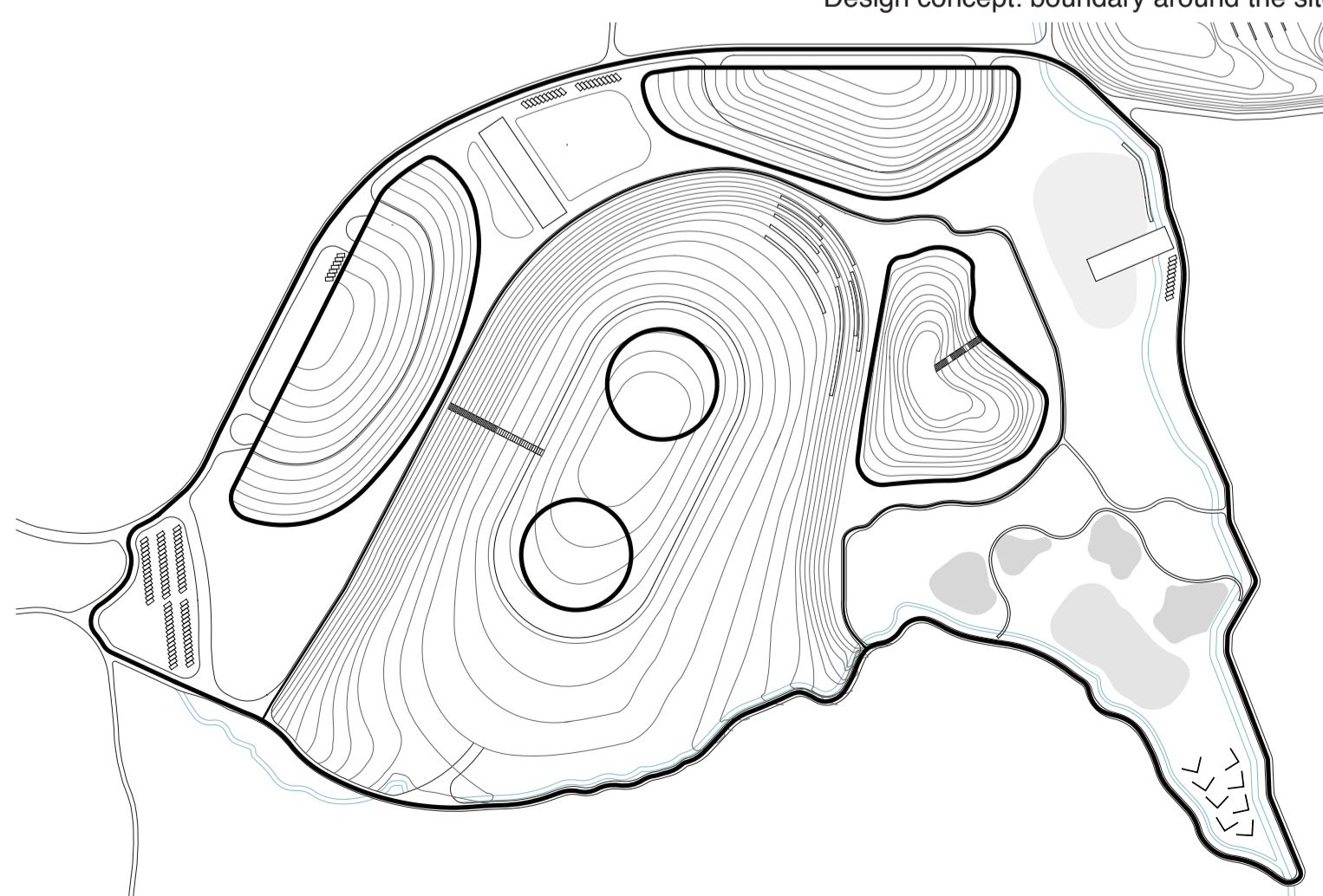
Analysis: water system



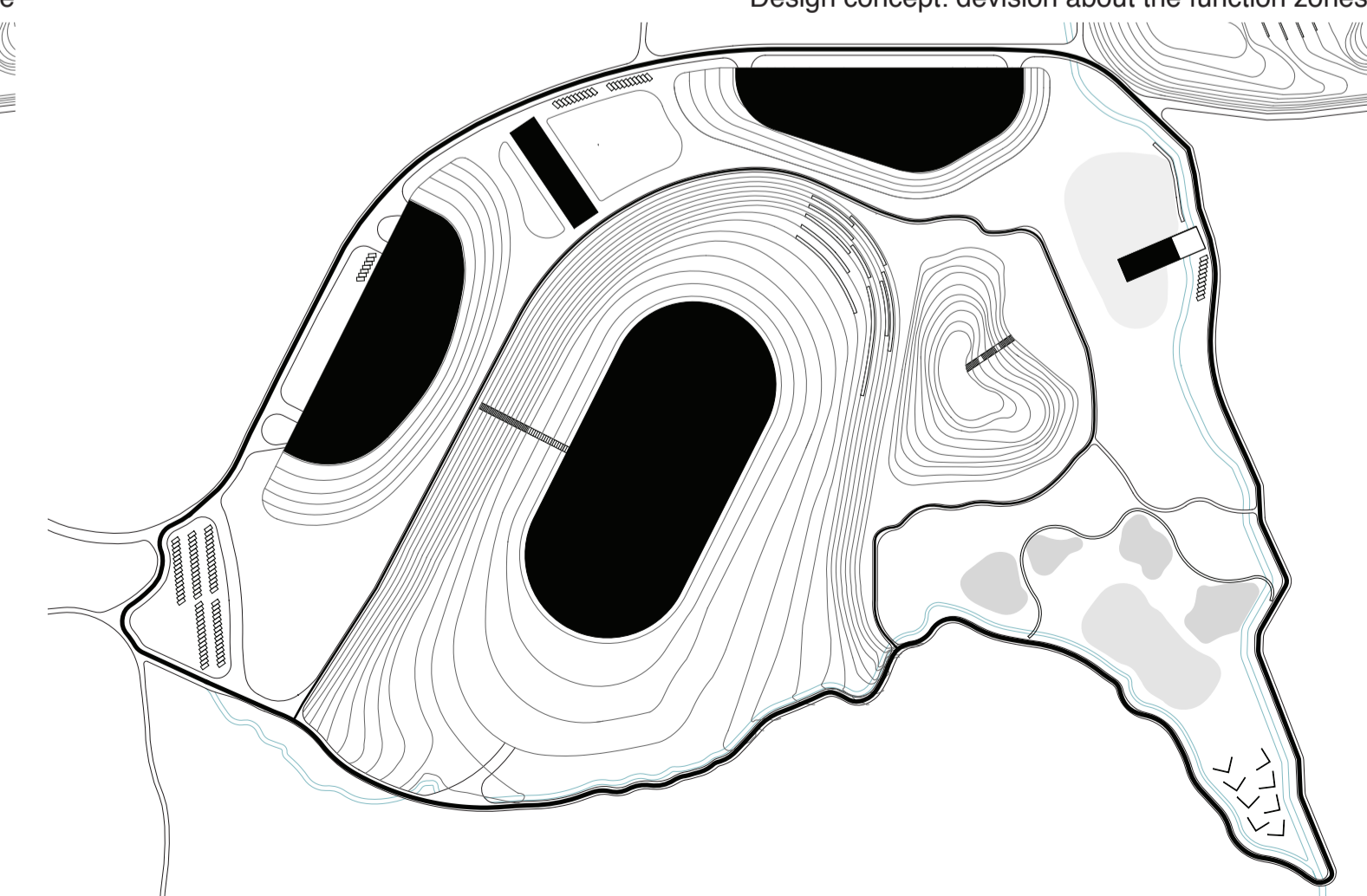
Design concept: boundary around the site



Design concept: division about the function zones



Design concept: man-made slopes

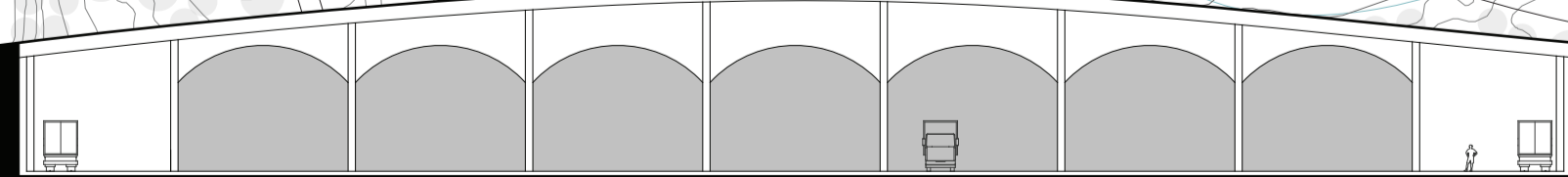
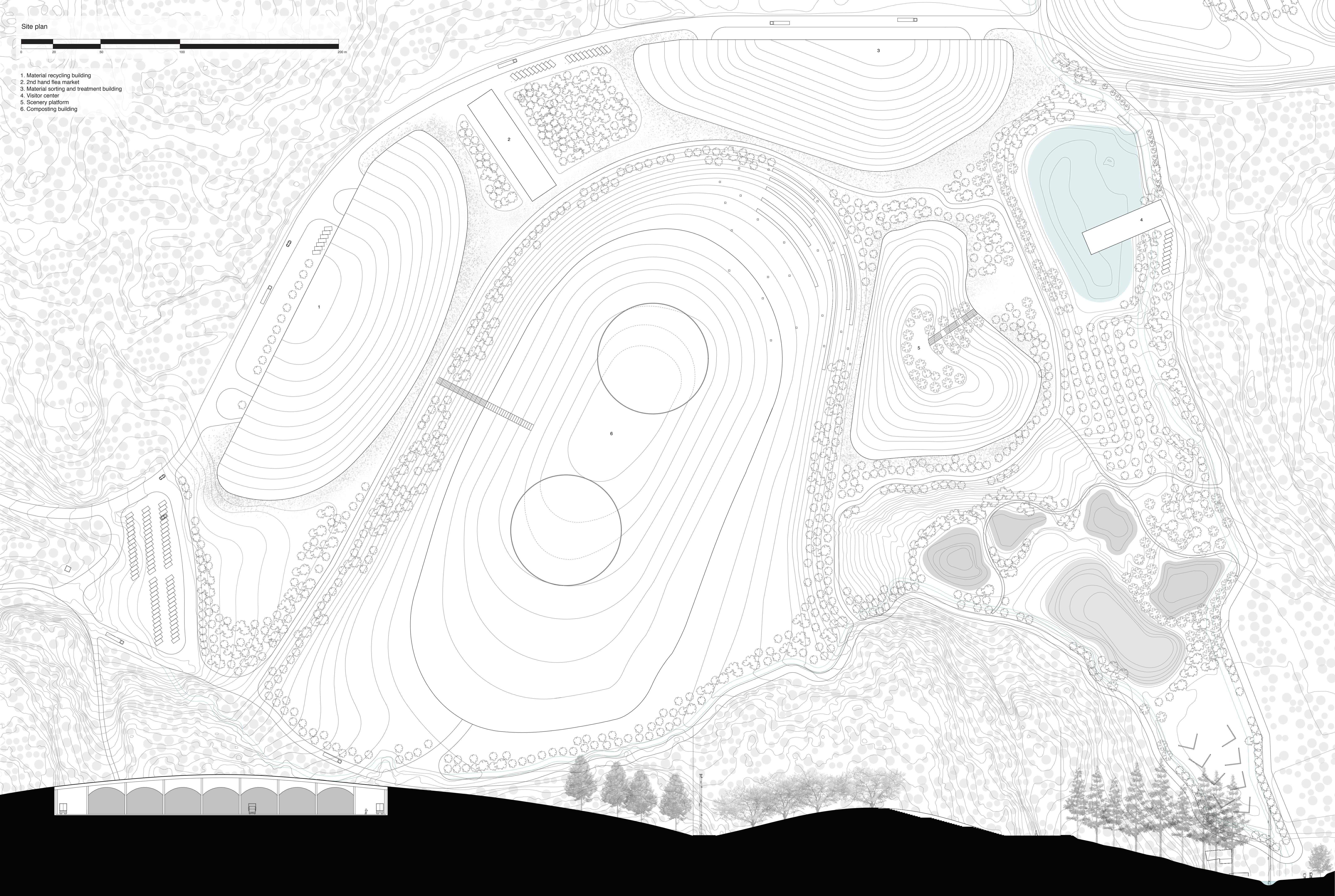


Design concept: inserted functions inside of the man-made landscape

Site plan



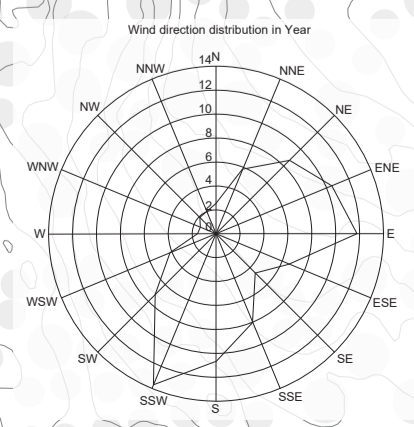
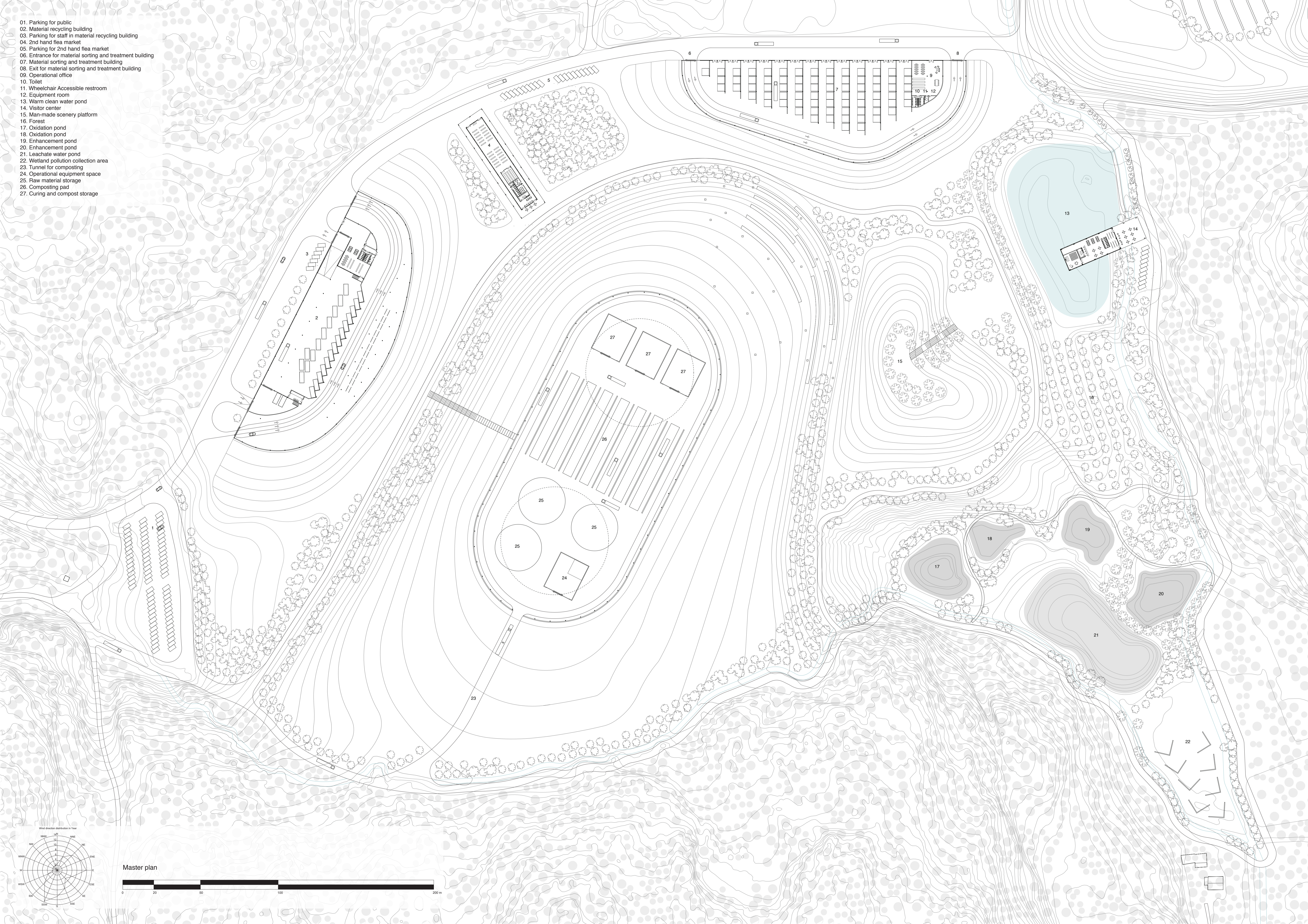
- 1. Material recycling building
- 2. 2nd hand flea market
- 3. Material sorting and treatment building
- 4. Visitor center
- 5. Scenery platform
- 6. Composting building



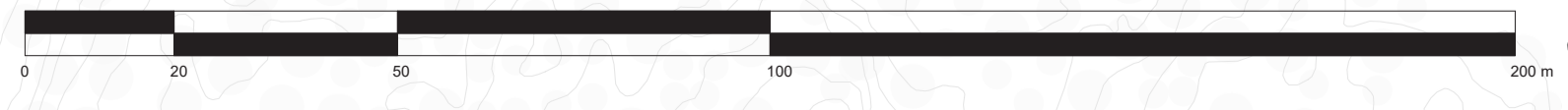
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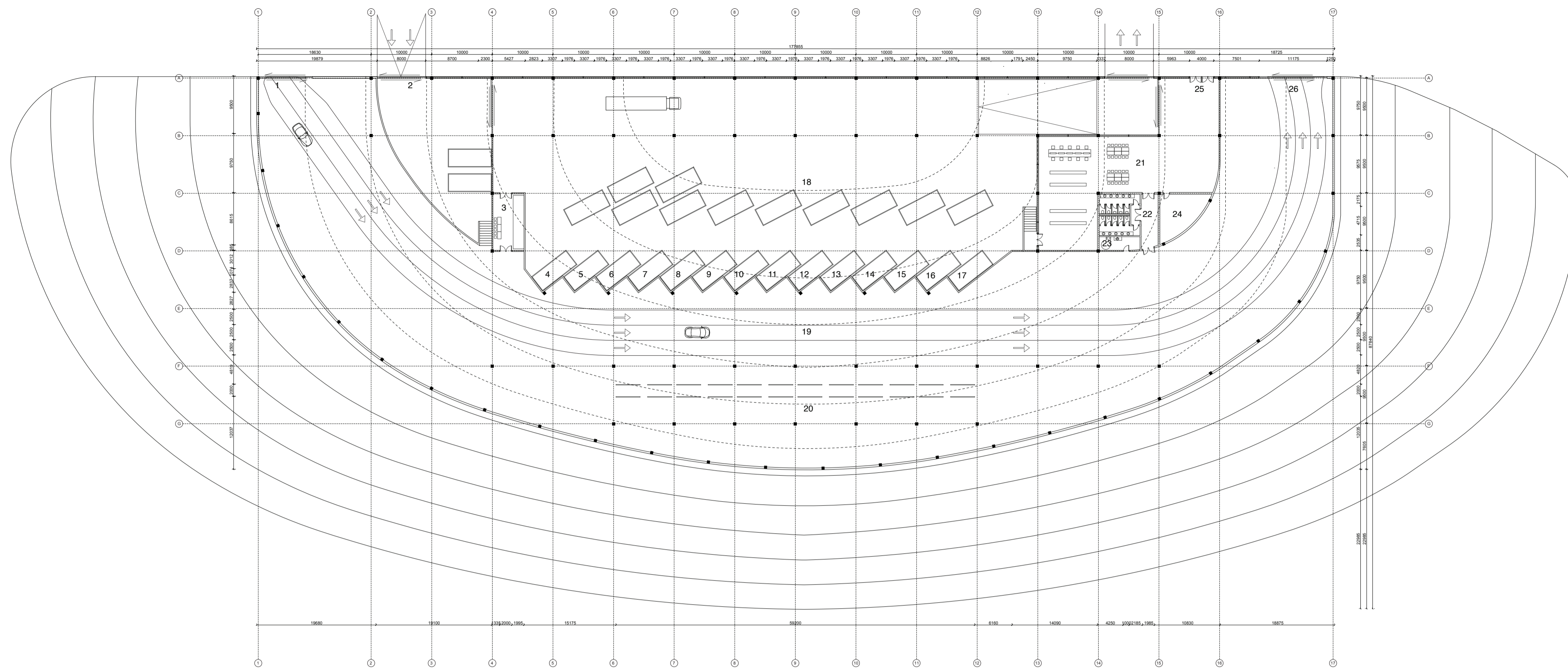


- 01. Parking for public
- 02. Material recycling building
- 03. Parking for staff in material recycling building
- 04. 2nd hand flea market
- 05. Parking for 2nd hand flea market
- 06. Entrance for material sorting and treatment building
- 07. Material sorting and treatment building
- 08. Exit for material sorting and treatment building
- 09. Operational office
- 10. Toilet
- 11. Wheelchair Accessible restroom
- 12. Equipment room
- 13. Warm clean water pond
- 14. Visitor center
- 15. Man-made scenery platform
- 16. Forest
- 17. Oxidation pond
- 18. Oxidation pond
- 19. Enhancement pond
- 20. Enhancement pond
- 21. Leachate water pond
- 22. Wetland pollution collection area
- 23. Tunnel for composting
- 24. Operational equipment space
- 25. Raw material storage
- 26. Composting pad
- 27. Curing and compost storage

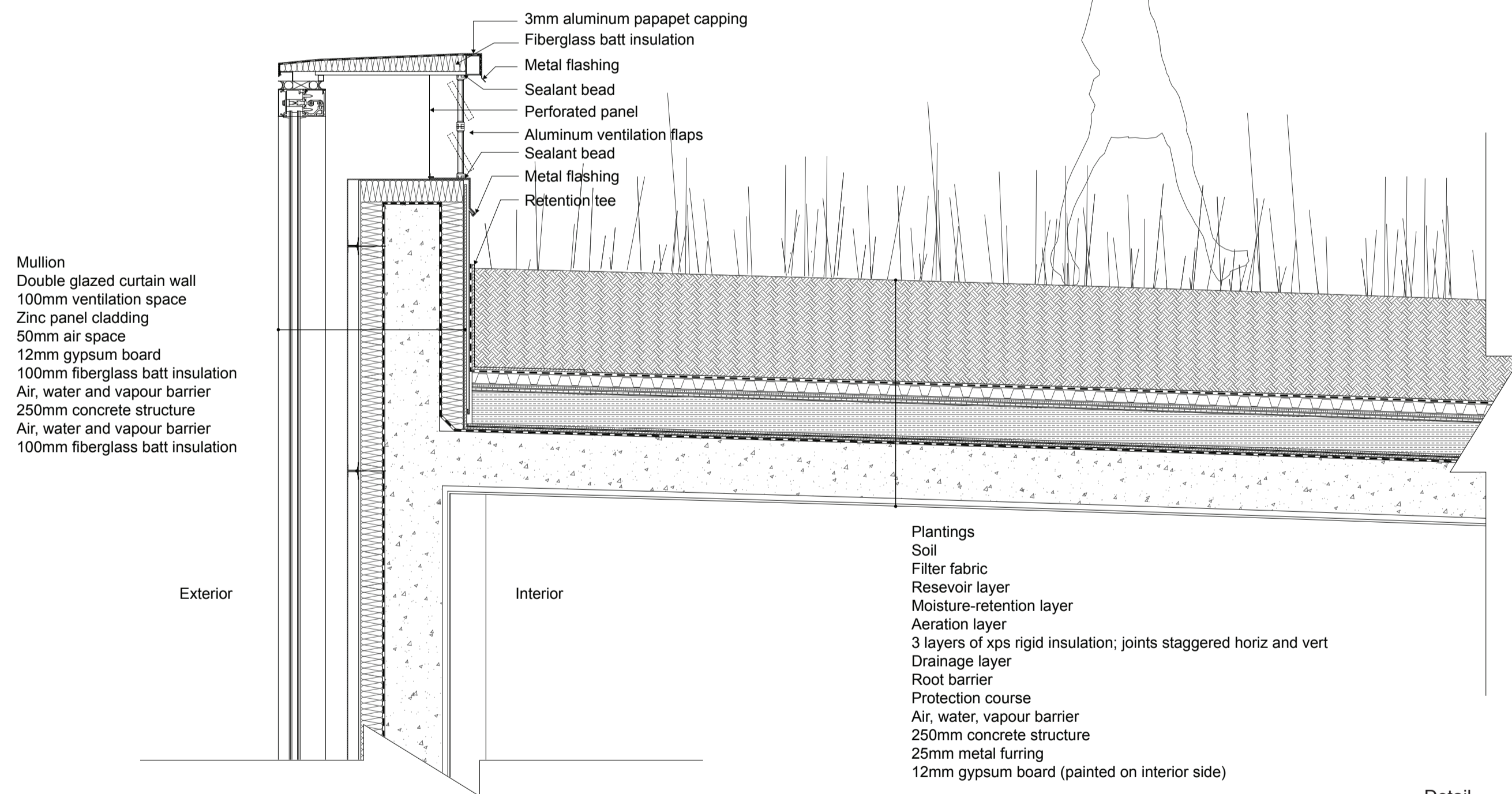


Master plan





Material recycling building plan



Mullion
 Double glazed curtain wall
 100mm ventilation space
 Zinc panel cladding
 50mm air space
 12mm gypsum board
 100mm fiberglass batt insulation
 Air, water and vapour barrier
 250mm concrete structure
 Air, water and vapour barrier
 100mm fiberglass batt insulation

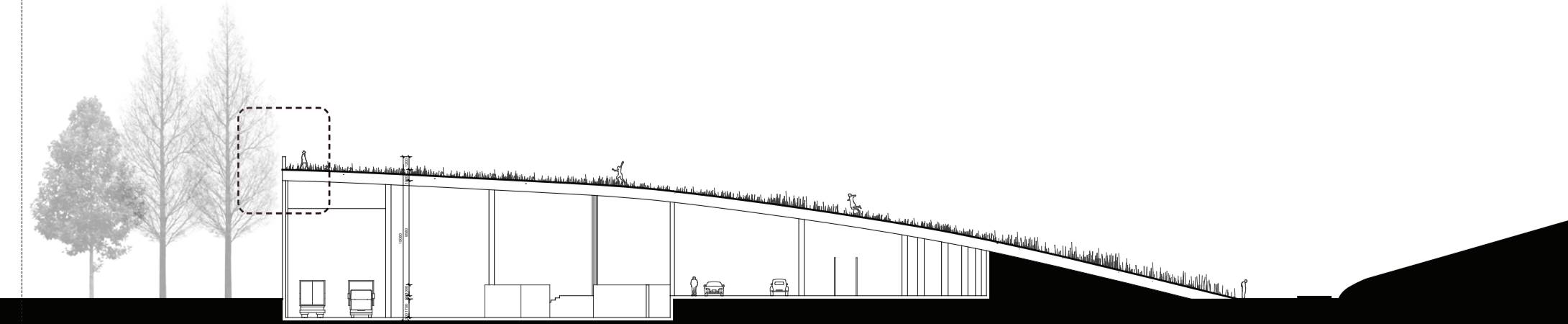
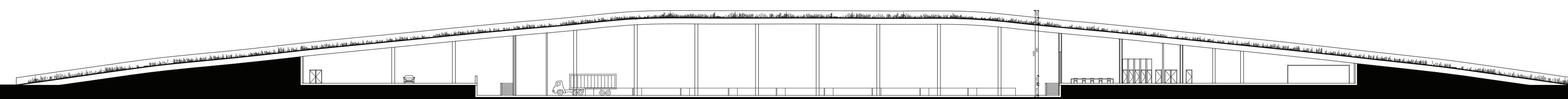
Plantings
 Soil
 Filter fabric
 Reservoir layer
 Moisture-retention layer
 Aeration layer
 3 layers of xps rigid insulation; joints staggered horiz and vert
 Drainage layer
 Root barrier
 Protection course
 Air, water, vapour barrier
 250mm concrete structure
 25mm metal furring
 12mm gypsum board (painted on interior side)

Detail
 1:20

- 01. Entrance for private cars
- 02. Entrance for trucks
- 03. Collection area for Hazardous waste
- 04. Collection Container for Plaster
- 05. Collection Container for Mattresses
- 06. Collection Container for Impregnated wood
- 07. Collection Container for Metal
- 08. Collection Container for Plastic
- 09. Collection Container for Waste electricity equipments, appliances, cables
- 10. Collection Container for cardboard and paper
- 11. Collection Container for combustion
- 12. Collection Container for normal wood
- 13. Collection Container for hard shell
- 14. Collection Container for vinyl flooring and vinyl insulation
- 15. Collection Container for garden waste for composting
- 16. Collection Container for fluorescent lights
- 17. Collection Container for glass
- 18. Containers collection and storage area
- 19. Tracks for private cars
- 20. Exhibition and guidance area
- 21. Administration office and supervision area
- 22. Toilet
- 23. Wheelchair Accessible restroom
- 24. Equipment room
- 25. Exit for trucks
- 26. Exit for private cars



Material recycling building interior view



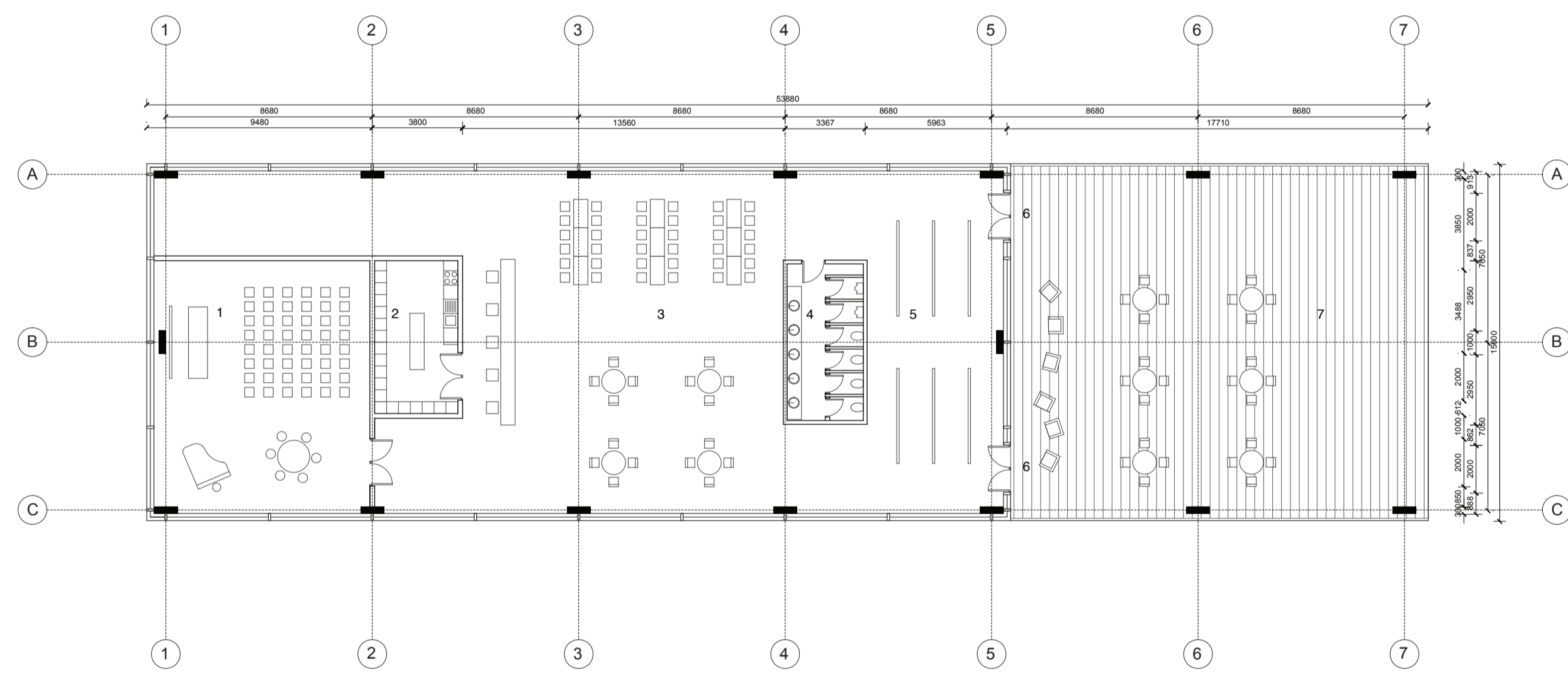
Material recycling building section



Visitor center exterior view

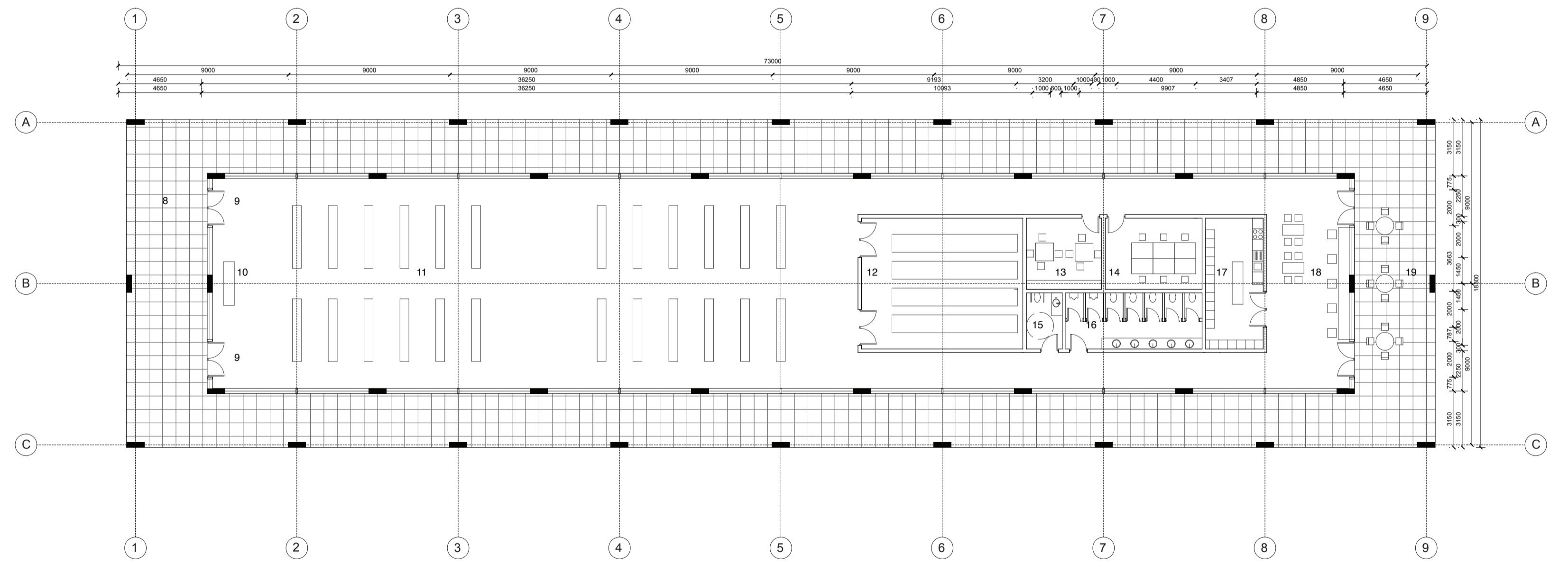
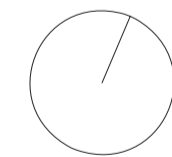


2nd hand flea market exterior view



- 1. Small auditorium
- 2. Kitchen
- 3. Restaurant and Cafe
- 4. Toilet
- 5. Small exhibition space
- 6. Entrance
- 7. Platform

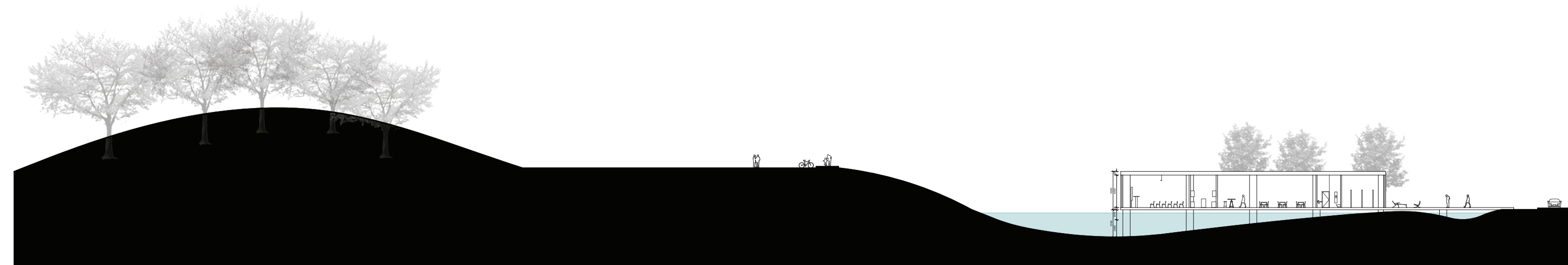
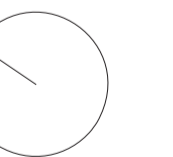
Visitor center plan



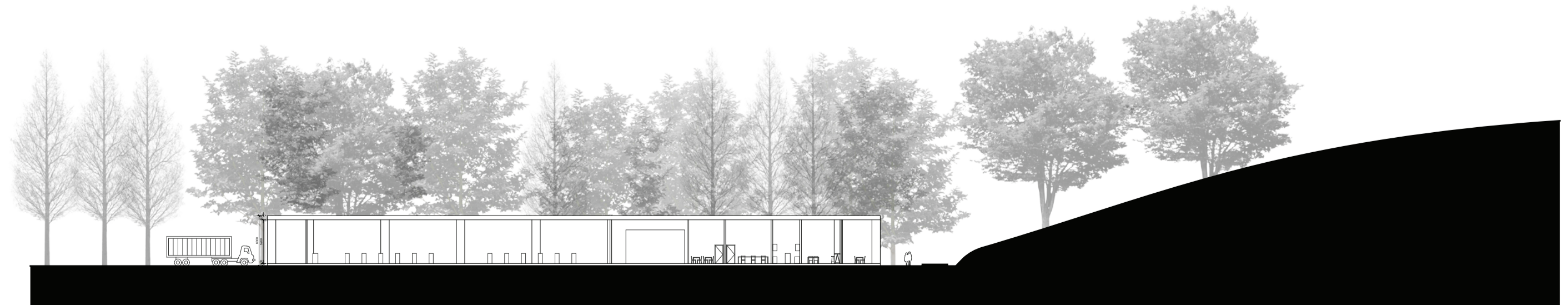
- 8. Temporary market space (Christmas tree market, compost soil market)
- 9. Entrance
- 10. Lobby and Reception
- 11. 2nd hand market space
- 12. Storage
- 13. Workshop and repair room

- 14. Management office
- 15. Wheelchair Accessible restroom
- 16. Toilet
- 17. Kitchen
- 18. Cafe
- 19. Outside cafe

2nd hand flea market plan



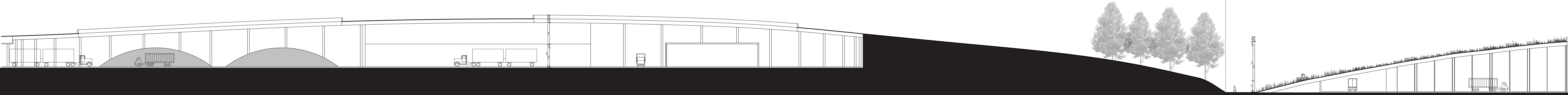
Visitor center section



2nd hand flea market section



Bird view

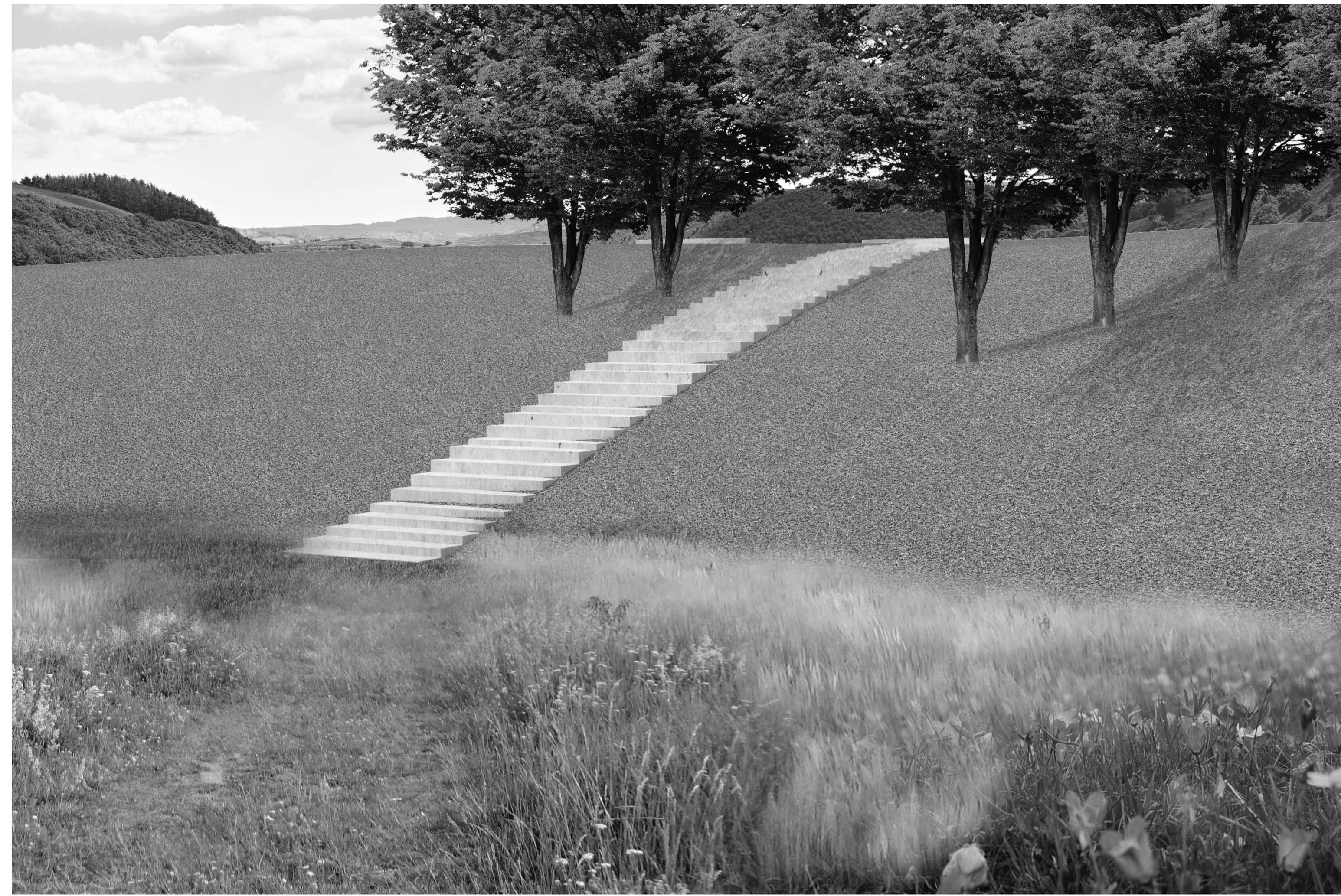


Section





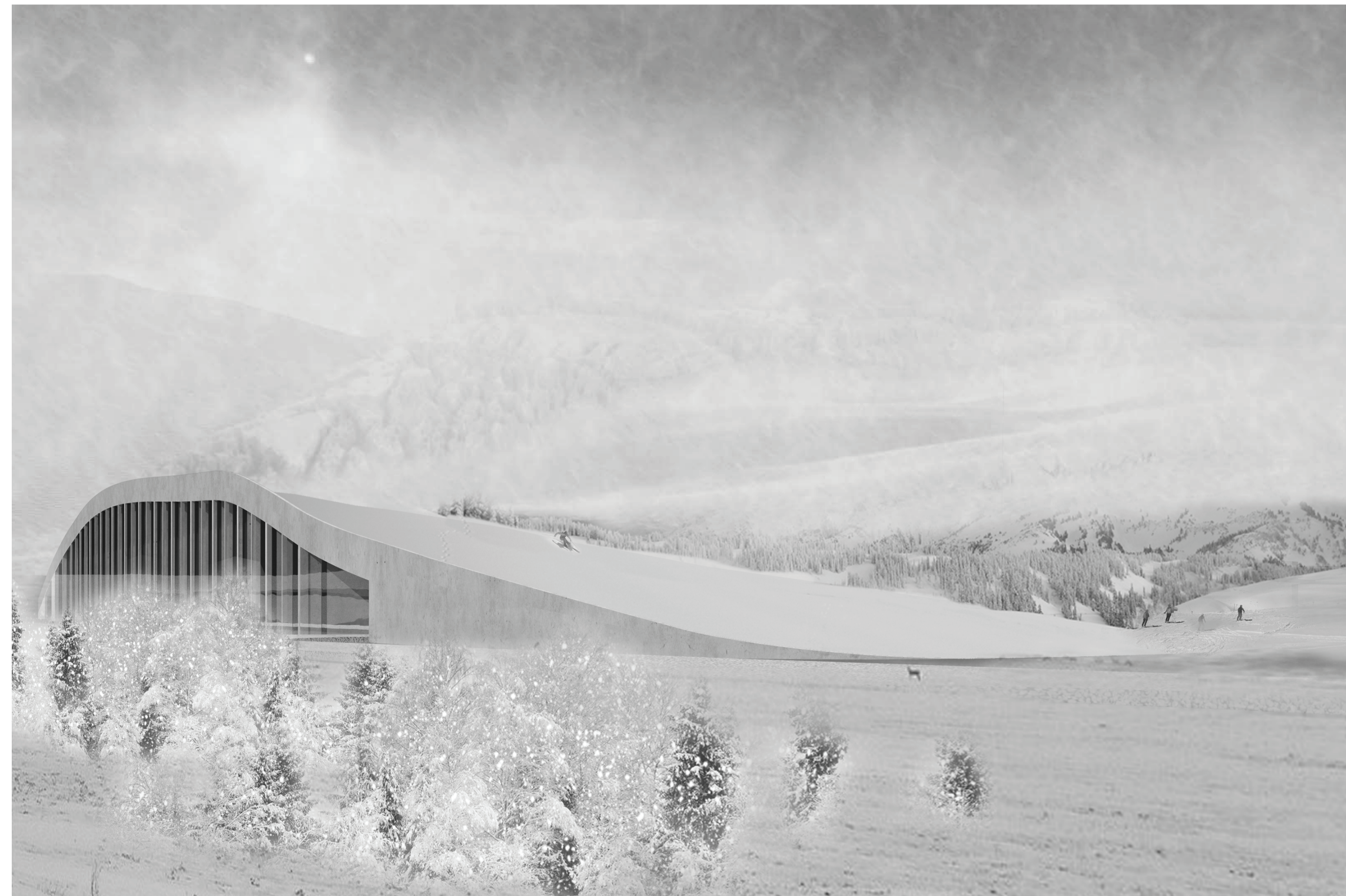
Wetland area view



Scenery platform view



2nd hand flea market semi-exterior view



Material sorting building exterior winter view